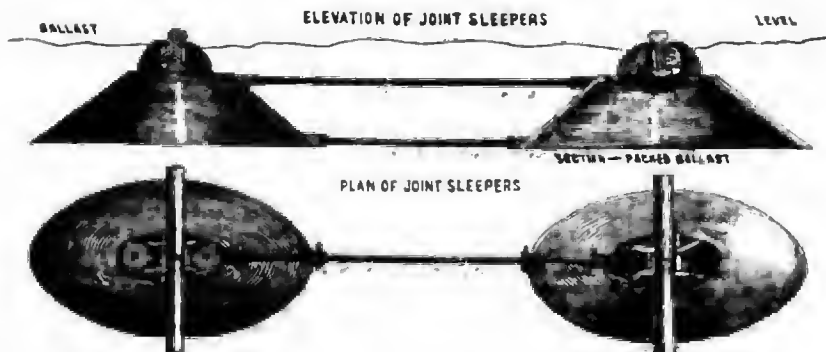


## GREAVES'S SURFACE-PACKED RAILWAY SLEEPERS.



would have remained a stagnant and offensive ditch. A new sewer was ordered to be constructed in Bedfordbury. It was next agreed that all works of emergency should be immediately put in hand, and the same to be reported at the next court.

A letter was read from R. G. Anderson, Esq., Assistant Paymaster General, to whom the system of keeping the accounts of the Commission by Mr. Grey had been referred, which stated that he had no hesitation in saying that it would work well, and that the plans were well calculated to avoid useless repetition and labour.

The General Purposes Committee recommended that, in consequence of the immense quantity of matter flushed away, and the consequent diminution for their necessity, half the flushing men be paid off, which recommendation was agreed to.

The surveyor's report on cleansing and flushing was read, and from which it appeared that no less than 90,000 tons of sewage matter had been flushed away from 60 miles of sewers on the north side of the Thames alone.

The following recommendations of the committee were also adopted:—

That tenders for one year for jobbing works under 200*l.* be obtained for Westminster, Tower Hamlets, and Poplar.

That gully-flaps be fixed at the public charge.

That the system proposed by the public accountant be approved and adopted.

That no person be retained in the service of the commissions as a salaried officer, who is in private practice, or whose whole time is not available to the public service.

That the committee be authorised to renew the services of such officers as they deem requisite for carrying on the business of the commissions.

On the motion of Mr. Hutton, it was resolved, that no petition be received unless it be placed in the hands of the clerk at least three days previously, except in any emergency, to be determined by the court.

The clerk produced the following financial statement of the commission:—

	Balance.	Cheques drawn.	Balance remaining.
Westminster district .....	£3195 19 9	2,173 11 7	1,012 8 2
Usborne and Finsbury .....	1,426 16 11	374 12 6	1,051 4 5
Tower Hamlets .....	9,746 18 3	511 3 0	9,194 15 2
Poplar .....	2,611 1 1	61 3 0	215 8 1
St. Katharine's .....	Nil.	Nil.	NB.
Hurry and Kent .....	1,444 4 2	1,068 17 7	375 6 7
Greenwich .....	105 1 0	23 15 0	82 6 0

Total balance in hand .....

**IMPROVEMENT OF DRAIN PIPES.**—Some time ago, we mentioned Mr. John Martin's invention for securing drain pipes together at the joints, without incurring the necessity of breaking one or more length of pipe in order to remove any obstruction that might occur in it. Another has since been registered by Mr. Northen, of Lambeth. Each length of pipe has a half faucet (so to speak) fastened on the same side of its two ends, so that when the pipes are put together the half faucets on the upper side of one length of pipe fit on to the half faucet on the under side of the adjoining length, which, while it is supposed to give the security against leakage possessed by the spigot and faucet joint, admits of any one pipe in the series being replaced without disturbing the others.

## GREAVES'S SURFACE-PACKED RAILWAY SLEEPER.

IMPROVEMENTS in the construction of the permanent way, the maintenance of which forms at present a large item in the accounts of all railway companies, are still obviously needed. Stone sleepers have given place to wooden ones, but these are found to have many disadvantages, such as want of durability, and the necessity of constant supervision to keep them properly adjusted. Mr. Greaves, a Manchester machinist, has invented and patented a cast-iron sleeper, which appears to us to have many advantages.

It may be described as a hollow cone (but oval on plan instead of circular), the chair for the rail forming the vertex. The rods connect these cones in pairs, as shown by the annexed cut, so as to prevent displacement; and the chair being cast as part of the sleeper itself, the serious difficulty at present experienced in fastening the chair to the sleeper is avoided.

The first cost of the patent sleeper and chair is, we are told, about the same as that of those at present used; but when its superior durability, and the less cost of maintaining the permanent way, in consequence of its use, are taken into consideration, the invention will be seen to effect a large saving.

It has been in use, we hear, on a portion of the Lancashire and Yorkshire Railway for twelve months.

## Correspondence.

## FALL OF KNARESBOROUGH VIADUCT OVER NIDD.

SIR,—In your last week's allusion to the fall of this viaduct, I find these words:—"The cause remains yet to be explained." As a builder of similar constructions (as well as a shareholder), and having seen this viaduct during construction, also since its fall, I venture to assign the cause in a few words, viz., lack of practical knowledge and of common sense to those concerned. My reason for coming to that conclusion is deduced from "plain principles." The weakness occurred in the middle pier of four arches of 60 feet span each, and was owing to the simple fact of the pier wanting to be composed of work well bonded and grouted, in lieu of common wallstone of from 9 to 12 inch bed, filled in between with spawls, and sandy mortar, with scarcely any bond at all. I conceive it a great public benefit that it has tumbled down now, before the opening. Only conceive the idea of such a construction just being able to stand on its legs until an engine approached with its load, and dropping along with the mass.

It behoves the Commissioners of Railways to look to these things, and THE BUILDER should sound the alarm. Not long since the arches over Wharfe, on the Leeds and Thirsk line, fell; and if these things are any criterion of the general state of affairs along that line, inasmuch as the same parties have control of both, with the immense mass of arching in the

tunnel,—it would be wise for the shareholders to look ahead in time, for it is certain in all these cases they must pay the piper.

The present affair is about 6,000*l.* damage, besides loss of time in reconstructing.—I am, Sir, &c.

A SUBSCRIBER.

## Miscellaneous.

**ST. PETER'S CHURCH, LIVERPOOL.**—The foundation-stone of the new Presbyterian church, about to be erected in Great Oxford-street, opposite St. Martin's, was laid on Wednesday in the week before last. The style is early decorated Gothic, and the roof will be of open framed carpentry. The length of the edifice outside will be 111 feet; breadth, 53½ feet, comprising nave and aisles, with a spire 119 feet in height. The nave roof will be 49 feet high, lighted by a range of three-light windows in the clerestory; that of the aisles 16 feet, lighted by two-light windows. The nave gable is to be filled with traceried five-light windows, likely to be of stained glass. There will be no galleries, except a small one over the porch. There will be 800 sittings. No chancel being required, a large vestry and library at the north end are grouped together with the gables of the nave aisles and a transept entrance on the east side. Schools, well lighted and high roofed, are to be provided for 450 children, with windows above the level of the street. Mr. Hay is the architect, and the work has been contracted for by Messrs. Paterson, Anderson, Bromley, and Holt. The cost of the whole will be rather more than 3,000*l.*

**SIMS'S STEAM-ENGINE: A NOVELTY.**—The economization of steam and fuel appears to be about to reach its maximum, or rather its minimum, in a recent patent taken out by Mr. James Sims, of Redruth, the well-known steam-engine builder, the essential principle of which consists in the use of steam merely to shift the main sources of the motive power,—viz., two heavy weight-blocks to each of one, two, or more wheels—alternately from and to the centre of motion. The principle is said to be applicable either to rotary or reciprocating engines, and to engines working either on the expansive or the condensing principle, but particularly to expansive and high-pressure engines. The wheel or wheels, too, may be made to revolve either way, and the power may be transmitted either from the shaft or the periphery, and may be converted, as the special purpose of the engine may require, into rectilinear motion by any of the known methods.

**"THE LOCOMOTIVE."**—Peter Progress, whose little treatises on "the rail" and "the telegraph," we have already mentioned, has now given a pleasant and not too profound an account of the application of steam to the purposes of locomotion. With its predecessors, it forms a very interesting account of railway appliances in the nineteenth century, well calculated to seduce the careless into the acquirement of some useful knowledge, and to open the understanding of the young.

Clark and Co., Gracechurch-street.